Complete Summary

GUIDELINE TITLE

Review of the therapeutic management of Parkinson's disease. Report of a joint task force of the European Federation of Neurological Societies and the Movement Disorder Society–European Section. Part I: early (uncomplicated) Parkinson´s disease.

BIBLIOGRAPHIC SOURCE(S)

Horstink M, Tolosa E, Bonuccelli U, Deuschl G, Friedman A, Kanovsky P, Larsen JP, Lees A, Oertel W, Poewe W, Rascol O, Sampaio C, European Federation of Neurological Societies, Movement Disorder Society-European Section. Review of the therapeutic management of Parkinson's disease. Report of a joint task force of the European Federation of Neurological Societies and the Movement Disorder Society-European Section. Part I: early (uncomplicated) Parkinson's disease. Eur J Neurol 2006 Nov;13(11):1170-85. [190 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

The guidelines will need to be updated no later than 2009.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory information has been released.

- March 29, 2007 – Permax (Pergolide): Voluntary market withdrawal in the U.S. and worldwide due to safety concerns of an increased risk of cardiovascular events. See the U.S. Food and Drug Administration (FDA) Web site for more information.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Early (uncomplicated) Parkinson's disease (PD)

Note: Uncomplicated PD refers to patients suffering from the classical motor syndrome of PD only, without treatment-induced motor complications and without neuropsychiatric or autonomic problems.

GUIDELINE CATEGORY

Assessment of Therapeutic Effectiveness
Prevention
Treatment

CLINICAL SPECIALTY

Family Practice
Internal Medicine
Neurology
Pharmacology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To provide evidence-based recommendations for the management of early (uncomplicated) Parkinson's disease (PD) based on a review of the literature

TARGET POPULATION

Patients with early (uncomplicated) Parkinson's disease

INTERVENTIONS AND PRACTICES CONSIDERED

1. Monoamine oxidase isoenzyme B (MAO-B) inhibitors (e.g., selegiline, rasagiline)
2. Amantadine
3. Anticholinergics
4. Levodopa
5. Orally active dopamine agonists (e.g., pramipexole, ropinirole, bromocriptine)
6. Adjustment of initial monotherapy

Note: Refer to the original guideline document for information on medications that were considered but not recommended due to ineffectiveness, insufficient data, or serious adverse effects.

MAJOR OUTCOMES CONSIDERED

- Effectiveness of treatment in symptomatic control of parkinsonism and prevention of motor and non-motor complications
- Adverse effects of medications

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Searches were carried out in MEDLINE, the full database of the Cochrane Library, and the International Network of Agencies for Health Technology Assessment (INAHTA), up to the first complete draft in May 2005. During the following discussions, relevant articles could be added up to January 2006. The databases were also searched for existing guidelines and management reports, and requests were made to European Federation of Neurological Societies (EFNS) societies for their National Guidelines. Non-European guidelines were searched for using MEDLINE. Reference lists from (review) articles and other reports were also checked.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Evidence Classification Scheme for a Therapeutic Intervention

Class I: An adequately powered prospective, randomized, controlled clinical trial with masked outcome assessment in a representative population or an adequately powered systematic review of prospective randomized controlled clinical trials with masked outcome assessment in representative populations. The following are required:

a. Randomization concealment
b. Primary outcome(s) is/are clearly defined

c. Exclusion/inclusion criteria are clearly defined
d. Adequate accounting for dropouts and crossovers with numbers sufficiently low to have minimal potential for bias
e. Relevant baseline characteristics are presented and substantially equivalent among treatment groups or there is appropriate statistical adjustment for differences

Class II: Prospective matched-group cohort study in a representative population with masked outcome assessment that meets a–e above or a randomized, controlled trial in a representative population that lacks one criteria a–e

Class III: All other controlled trials (including well-defined natural history controls or patients serving as own controls) in a representative population, where outcome assessment is independent of patient treatment

Class IV: Evidence from uncontrolled studies, case series, case reports, or expert opinion

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Classification of scientific evidence and the rating of recommendations are made according to the European Federation of Neurological Societies (EFNS) guidance.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Classification of scientific evidence and the rating of recommendations are made according to the European Federation of Neurological Societies (EFNS) guidance. This report focuses on the highest levels of evidence available and, when only class IV evidence is available, or there is no scientific evidence, a good practice point is given.

After an initial meeting, held to discuss the principal format and methodology, six members of the task force provided a first draft of the report, which was commented on by all members via e-mail and through discussion at four EFNS and Movement Disorder Society (MDS) congress meetings, until a consensus was reached (informative consensus approach). At a final meeting in September 2005, the six primary authors finalized the text for approval by all members of the task force.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Rating of Recommendations

Level A rating (established as effective, ineffective, or harmful) requires at least one convincing class I study or at least two consistent, convincing class II studies.

Level B rating (probably effective, ineffective, or harmful) requires at least one convincing class II study or overwhelming class III evidence.

Level C rating (possibly effective, ineffective, or harmful) requires at least two convincing class III studies.

Good practice point When only class IV evidence is available, or there is no scientific evidence, a good practice point is given.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The guidelines were validated according to the European Federation of Neurological Societies (EFNS) criteria (see "Availability of Companion Documents" field in this summary).

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The levels of evidence (class I-IV) supporting the recommendations and ratings of recommendations (A-C, good practice point) are defined at the end of the "Major Recommendations" field.

Early Untreated Patients

The optimal time frame for onset of therapy has not been clearly defined. Once parkinsonian signs start to have an impact on the patient's life, initiation of treatment is recommended. For each patient, the choice between the numerous effective drugs available is based on a subtle combination of subjective and objective factors. These factors include considerations related to the drug (efficacy for symptomatic control of parkinsonism/prevention of motor complications, safety, practicality, costs, etc.), to the patient (symptoms, age, needs, expectations, experience, co-morbidity, socioeconomic level, etc.), and to his/her environment (drug availability according to national markets in the European Union, variability in economic and health insurance systems, etc.). However, based on the available level of evidence alone, two main issues are usually

considered when initiating a symptomatic therapy for early Parkinson's disease (PD): the symptomatic control of parkinsonism, and the prevention of motor complications (see Table below).

Currently, there is no uniform proposal across Europe on initiating symptomatic medication for PD. Options include starting treatment with:

- *Monoamine oxidase isoenzyme type B (MAO-B inhibitor)*, like selegiline or rasagiline (**level A**). The symptomatic effect is more modest than that of levodopa and (probably) dopamine agonists, but they are easy to administer (one dose, once daily, no titration).
- *Amantadine or an anticholinergic* (**level B**). The impact on symptoms is smaller than that of levodopa. Anticholinergics are poorly tolerated in the elderly and their use is mainly restricted to young patients.
- *Levodopa*, the most effective symptomatic antiparkinsonian drug (**level A**). After a few years of treatment, levodopa is frequently associated with the development of motor complications. As older patients are more sensitive to neuropsychiatric adverse reactions and are less prone to developing motor complications, the early use of levodopa is recommended in the older population (**good practice point**). The early use of controlled release (CR) levodopa formulations is not effective in the prevention of motor complications (**level A**).
- *Orally active dopamine agonist*. Pramipexole and ropinirole are effective as monotherapy in early PD, with a lower risk of motor complications than levodopa (**level A**). Older drugs like bromocriptine are supported by lower class evidence, giving a **level B** recommendation. However, there is no convincing evidence that they are less effective in managing patients with early PD. The benefit of agonists in preventing motor complications (**level A**, with data up to 5 years only) must be balanced with the smaller effect on symptoms and the greater incidence of hallucinations, somnolence, and leg edema, when compared with levodopa. Patients must be informed of these risks (e.g. excessive daytime somnolence is especially relevant to drivers). Younger patients are more prone to developing levodopa-induced motor complications, and therefore initial treatment with an agonist can be recommended in this population (**good practice point**). Ergot derivatives such as pergolide, bromocriptine, and cabergoline are not recommended as first-line medication because of the risk of fibrotic reactions. Subcutaneous apomorphine is not appropriate at this stage of the disease. The early combination of low doses of a dopamine agonist with low doses of levodopa is another option, although the benefits of such a combination have not been properly documented.
- *Rehabilitation*. Because of the lack of evidence of the efficacy of physical therapy and speech therapy at this stage of the disease, a recommendation cannot be made.

Table. Recommendations for the Treatment of Early PD

	Recommendation Level	
Therapeutic Interventions	**Symptomatic Control of Parkinsonism**	**Prevention of Motor Complications**
Levodopa	Effective (level A)	Not applicable

	Recommendation Level	
Therapeutic Interventions	**Symptomatic Control of Parkinsonism**	**Prevention of Motor Complications**
Levodopa controlled release (CR)	Effective (level A)	Ineffective (level A)
Apomorphine	Not used[a]	Not used[a]
Bromocriptine[b]	Effective (level B)	Effective (level B)
Cabergoline[b]	Effective (level B)	Effective (level A)
Dihydroergocryptine[b]	Effective (level A)	No recommendation[c]
Lisuride[b]	Effective (level B)	Effective (level C)
Pergolide[b]*	Effective (level A)	Effective (level B)
Piribedil	Effective (level C)	No recommendation[c]
Pramipexole	Effective (level A)	Effective (level A)
Ropinirole	Effective (level A)	Effective (level A)
Selegiline	Effective (level A)	Ineffective (level A)
Rasagiline	Effective (level A)	No recommendation[c]
Entacapone[d]	No recommendation[c]	No recommendation[c]
Tolcapone[d]	No recommendation[c]	No recommendation[c]
Amantadine	Effective (level B)	No recommendation[c]
Anticholinergics	Effective (level B)	No recommendation[c]
Rehabilitation	No recommendation[c]	No recommendation[c]
Surgery	Not used	Not used

[a]Subcutaneous apomorphine is not used in early PD.

[b]Pergolide*, bromocriptine, cabergoline and, precautionarily, other ergot derivates, cannot be recommended as a first-line treatment for early PD because of the risk of valvular heart disorder.

[c]No recommendation can be made due to insufficient data.

[d]As Catechol-O-methyltransferase (COMT) inhibitors, entacapone and tolcapone should always be given with levodopa. Due to hepatic toxicity, tolcapone is not recommended in early PD.

***Note from the National Guideline Clearinghouse (NGC)**: On March 29, 2007, Permax (pergolide) was withdrawn from the market in the U.S. and

worldwide due to safety concerns of an increased risk of cardiovascular events. See the U.S. Food and Drug Administration (FDA) Web site for more information.

Adjustment of Initial Monotherapy in Patients without Motor Complications

Patients Not on Dopaminergic Therapy

If a patient has started on a monoamine oxidase isoenzyme B (MAO-B) inhibitor, anticholinergic, amantadine, or a combination of these drugs, a stage will come when, because of worsening motor symptoms, there is a requirement for:

- Addition of levodopa or a dopamine agonist (**good practice point**). Just like in *de novo* patients, at this stage, the choice between levodopa and an agonist again mainly depends on the impact of improving motor disability (better with levodopa) compared with the risk of motor complications (less with agonists) and neuropsychiatric complications (greater with agonists). In addition, there is the effect of age upon the occurrence of motor complications (more frequent in younger patients), and neuropsychiatric complications (more frequent in older and cognitively impaired patients). In general, dopaminergic therapy could be started with agonists in younger patients, whereas levodopa may be preferred in older patients (**good practice point**, see previous section).

Patients on Dopaminergic Therapy

Once receiving therapy with a dopamine agonist or levodopa, adjustments of these drugs will also become necessary over time because of worsening motor symptoms.

If on dopamine agonist therapy:

- Increase the dopamine agonist dose (**good practice point**). However, even when the dopamine agonist dose is increased over time, it cannot control parkinsonian symptoms for more than about 3 to 5 years of follow-up in most patients.
- Switch between dopamine agonists (**level C**).
- Add levodopa (**good practice point**).

If on levodopa:

- Increase the levodopa dose (**good practice point**).
- Add a dopamine agonist (**good practice point**), although the efficacy of adding an agonist has been insufficiently evaluated.

Patients with Persistent or Emerging Disabling Tremor

If a significant tremor persists despite usual therapy with dopaminergic agents or amantadine, the following treatment options exist for tremor at rest:

- Anticholinergics (**good practice point**: possibly useful, although no full consensus could be made). Cave: anticholinergic side effects, particularly cognitive dysfunction in older patients. (See the "Potential Harms" field.)
- Clozapine (**level B**). Because of safety concerns (see Part II of the guidelines on the treatment of psychosis), clozapine is not advised for routine use, but it is considered as an experimental approach for exceptionally disabled patients requiring specialized monitoring (**good practice point**).
- Beta-blockers (propranolol). Beta-blockers can be effective in both resting and postural tremor (**level C**). However, because of methodological problems, a Cochrane review found it impossible to determine whether beta-blocker therapy is effective for tremor in PD. Further studies are needed to judge the efficacy of beta-blockers in the treatment of tremor in PD (**no recommendation can be made**).
- Consider deep brain stimulation. Usually subthalamic nucleus stimulation, rarely thalamic stimulation (**good practice point**, see Part II of the guidelines).

Occupational, Physical, and Speech Therapy

Physical therapy, especially exercise and cueing strategies, are probably effective (**level B**). Speech therapy is possibly effective (**level C**). However, the long-term benefits of these therapies remain to be proven. The studies discussed in the original guideline document and the conclusion address physical and speech therapy as adjunctive therapy in PD. No recommendation can be made regarding the effect of physiotherapy as monotherapy in early PD.

Definitions:

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Good practice point When only class IV evidence is available, or there is no scientific evidence, a good practice point is given.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for selected recommendations (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate treatment of early Parkinson's disease

POTENTIAL HARMS

Adverse Effects of Medications

- The most commonly reported side effects of *anticholinergics* are blurred vision, urinary retention, nausea, constipation (rarely leading to paralytic ileus), and dry mouth. The incidence of reduced sweating, particularly in those patients on neuroleptics, can lead to fatal heat stroke. Impaired mental function (mainly immediate memory and memory acquisition) is a well-documented central side effect that resolves after drug withdrawal. The abrupt withdrawal of anticholinergics may lead to a rebound effect with marked deterioration of parkinsonism. Consequently, anticholinergics should be discontinued gradually and with caution.
- As with any dopaminergic drug, *monoamine oxidase isoenzyme type B (MAO-B) inhibitors* can induce a variety of dopaminergic adverse reactions. At the daily doses currently recommended, the risk of tyramine-induced

hypertension (the 'cheese effect') is low. Concerns that the selegiline/levodopa combination increased mortality rates have been allayed.

- Side effects of *amantadine* are generally mild, most frequently including dizziness, anxiety, impaired coordination and insomnia (>5%), nausea and vomiting (5 to 10%), and headache, nightmares, ataxia, confusion/agitation, drowsiness, constipation/diarrhea, anorexia, xerostomia, and livedo reticularis (<5%). Less common side effects include psychosis, abnormal thinking, amnesia, slurred speech, hyperkinesia, hypertension, urinary retention, decreased libido, dyspnoea, rash, and orthostatic hypotension (during chronic administration).
- Peripheral side effects of *levodopa* include gastrointestinal and cardiovascular dysfunction. Central adverse effects include levodopa motor problems such as fluctuations, dyskinesia and dystonia, and psychiatric side effects such as confusion, hallucinations and sleep disorders. A meta-analysis found approximately 40% likelihood of motor fluctuations and dyskinesias after 4 to 6 years of levodopa therapy. Risk factors are younger age, longer disease duration, and levodopa. In individual studies, the percentage of fluctuations and dyskinesia may range from 10% to 60% of patients at 5 years, and up to 80 to 90% in later years. Neuropsychiatric complications occur in <5% of *de novo* patients on levodopa monotherapy.
- Side effects such as nausea, vomiting, orthostatic hypotension, confusion, psychosis, and somnolence may occur with administration of any of *dopamine agonists and other active dopamine-mimetic medications*. Peripheral leg edema is also commonly observed with most agonists. Hallucinations and somnolence are more frequent with some agonists than with levodopa. There is no convincing evidence that any agonist is better tolerated than bromocriptine. However, the rare but severe risk of pleuropulmonary/retroperitoneal fibrosis is greater with ergot agonists than with non-ergot agonists. The same is probably true for valvular heart disorders, although pergolide has been the most frequently reported drug at the present time. For this reason, pergolide is presently only used as a second-line alternative option, when other agonists have not provided an adequate response.

CONTRAINDICATIONS

CONTRAINDICATIONS

For recommendations concerning drug dosage, method and route of administration, and contraindications, the reader is referred to the local formulary or the manufacturer's instruction except when provided within the guideline recommendations.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- This guideline provides the view of an expert task force appointed by the Scientific Committee of the European Federation of Neurological Societies (EFNS). It represents a peer-reviewed statement of minimum desirable

standards for the guidance of practice based on the best available evidence. It is not intended to have legally binding implications in individual cases.
- For recommendations concerning drug dosage, method and route of administration, and contraindications the reader is referred to the local formulary or manufacturer's instruction, except when provided within the guidelines' recommendation itself.
- The opinions and views expressed in the paper are those of the authors and not necessarily those of the Movement Disorder Society (MDS) or its Scientific Issues Committee (SIC).

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

The European Federation of Neurological Societies has a mailing list and all guideline papers go to national societies, national ministries of health, World Health Organisation, European Union, and a number of other destinations. Corporate support is recruited to buy large numbers of reprints of the guideline papers and permission is given to sponsoring companies to distribute the guideline papers from their commercial channels, provided there is no advertising attached.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Horstink M, Tolosa E, Bonuccelli U, Deuschl G, Friedman A, Kanovsky P, Larsen JP, Lees A, Oertel W, Poewe W, Rascol O, Sampaio C, European Federation of Neurological Societies, Movement Disorder Society-European Section. Review of the therapeutic management of Parkinson's disease. Report of a joint task force of the European Federation of Neurological Societies and the Movement Disorder Society-European Section. Part I: early (uncomplicated) Parkinson's disease. Eur J Neurol 2006 Nov;13(11):1170-85. [190 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2006 Nov

GUIDELINE DEVELOPER(S)

European Federation of Neurological Societies - Medical Specialty Society

SOURCE(S) OF FUNDING

European Federation of Neurological Societies

GUIDELINE COMMITTEE

European Federation of Neurological Societies and the Movement Disorder Society–European Section

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Task Force Members: M. Horstink, Department of Neurology, Radboud University Medical Centre, Nijmegen, The Netherlands; E. Tolosa, Neurology Service, Hospital Clínic, Universitat de Barcelona, Barcelona, Spain; U. Bonuccelli, Department of Neurosciences, University of Pisa, Pisa, Italy; G. Deuschl, Department of Neurology, Christian-Albrechts-University Kiel, Germany; A. Friedman, Department of Neurology, Medical University of Warsaw, Warsaw, Poland; P. Kanovsky, Department of Neurology, Palacky University, Olomouc, Czech Republic; J. P. Larsen, Department of Neurology, Stavanger University Hospital, Stavanger, Norway; A. Lees, Reta Lila Weston Institute of Neurological Studies, London, UK; W. Oertel, Centre of Nervous Diseases, Philipps-University of Marburg, Marburg, Germany; W. Poewe, Department of Neurology, Innsbruck Medical University, Innsbruck, Austria; O. Rascol, Clinical Investigation Centre, Departments of Clinical Pharmacology and Neurosciences, University Hospital, Toulouse, France; C. Sampaio, Laboratório de Farmacologia Clinica e Terapeutica e Instituto de Medicina Molecular, Faculdade de Medicina de Lisboa, Lisbon, Portugal

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

M. Horstink has not received any departmental research grants or honoraria since starting this guidelines project.

E. Tolosa has received honoraria for research funding and consultancy from Novartis, Boehringer Ingelheim, Teva, Medtronic, Schwarz, and Servier.

U. Bonuccelli has acted as scientific advisor for, or obtained speaker honoraria from, Novartis, Boehringer Ingelheim, Pfizer, Chiesi, Schwarz, and GlaxoSmithKline. During the past 2 years he has received departmental grants and performed clinical studies for GlaxoSmithKline, Novartis, Teva, Chiesi, Boehringer, Schwarz, and Eisai.

G. Deuschl has acted as scientific advisor for, or obtained speaker honoraria from, Orina, Novartis, Boehringer Ingelheim, and Medtronic, during the past 2 years.

J.P. Larsen has received honoraria and research support from Orion Pharma and Pfizer, and has acted as a consultant for Lundbeck.

A. Lees has received honoraria for lectures from Novartis, Orion, Valeant, Britannia, GE-Amersham, Servier, Teva, GlaxoSmithKline, Boehringer Ingelheim, and Lundbeck.

W. Oertel has received honoraria for research funding and consultancy from Novartis, Boehringer Ingelheim, Schwarz, Medtronic, Teva, Orion, GlaxoSmithKline, Pfizer, and Solvay.

W. Poewe has received honoraria for lecturing and advisory board membership from Novartis, Glaxo- SmithKline, Teva, Boehringer Ingelheim, Schwarz, and Orion.

O. Rascol has received honoraria for research funding and/or consultancy from GlaxoSmithKline, Novartis, Boehringer Ingelheim, Eli Lilly, Teva, Lundbeck, Schwarz, and Servier.

C. Sampaio has received departmental research grants from Novartis Portugal. Her department has also charged consultancy fees to Servier and Lundbeck, and she has received honoraria for lectures from Boehringer Ingelheim.

A. Friedman and P. Kanovsky have nothing to declare.

GUIDELINE STATUS

This is the current release of the guideline.

The guidelines will need to be updated no later than 2009.

GUIDELINE AVAILABILITY

Electronic copies: Available to registered users from the European Federation of Neurological Societies Web site.

Print copies: Available from Dr M. W. I. M. Horstink, Department of Neurology, Radboud University Medical Centre, Nijmegen, the Netherlands; Phone: +31-24-3615202; Fax +31-24-3541122; E-mail: m.horstink@neuro.umcn.nl

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Brainin M, Barnes M, Baron JC, Gilhus NE, Hughes R, Selmaj K, Waldemar G; Guideline Standards Subcommittee of the EFNS Scientific Committee. Guidance for the preparation of neurological management guidelines by EFNS

scientific task forces – revised recommendations 2004. Eur J Neurol. 2004 Sep;11(9):577-81. Electronic copies: Available in Portable Document Format (PDF) from the European Federation of Neurological Societies Web site.

- Guideline papers. European Federation of Neurological Societies. Electronic copies: Available from the European Federation of Neurological Societies Web site.
- Continuing Medical Education questions available from the European Journal of Neurology Web site.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on April 12, 2007. The information was verified by the guideline developer on May 15, 2007.

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NGC DISCLAIMER

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